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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,750	10/03/2003	Kyoung-hwan Park	1293.1950	6605

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EXAMINER

RIVERO, MINERVA

ART UNIT PAPER NUMBER

2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/678,750

Applicant(s)

PARK ET AL.

Examiner

Minerva Rivero

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/08/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) ☐ Other: _____ |

DETAILED ACTION

1. In the Remarks filed 9/8/06, Applicants submitted arguments for allowability of the pending claims.

Response to Arguments

2. Applicants' arguments filed 9/8/06 have been fully considered but they are not persuasive.

Regarding claims 1, 4, 7, 10, 11, 14, 17, 20, and 23, Applicants argue that Deguchi does not disclose a low-pass filter (LPF) is applied to the side beam signal. The examiner cannot concur with Applicants. Deguchi discloses a LPF on the side beam signal, as shown in Fig. 7. Therefore the claims stay rejected.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Deguchi *et al.* (US Patent 4,787,076).

5. Regarding claims 1, 4, 7, 11, 17, and 20, Deguchi discloses a tracking error signal generating apparatus, method, system and computer-readable medium comprising:

a main beam push-pull (MPP) signal generating unit which generates an MPP signal according to electrical signals output by main photodetecting units based on a calculated deviation of beam powers detected by the main photodetecting units arranged on right and left sides of a specific track, respectively (*main beam tracking error signal*, Col. 4, Lines 19-25; Col. 5, Lines 24-25; see Figs. 2 and 6-7);

a side beam push pull (SPP) signal generating unit which generates an SPP signal according to electrical signals output by photodetecting units based on a calculated deviation of beam powers detected by the photodetecting units, the photodetecting units being one of pairs of the main photodetecting units diagonally arranged with respect to the track and side photodetecting units disposed on opposing sides of the track and outside of the main photodetecting units (tracking error signals resulting from auxiliary beams, Col. 6, Lines 28-32; see photodetector arrangement in Fig. 6-7);

a filter which removes AC components from the SPP signal (*low-pass filter*, Col. 6, Lines 49-51); and

a subtractor which generates a tracking error signal by calculating a difference between the MPP signal and the filtered SPP signal (*performing addition or subtraction of the T_{E1} (auxiliary beams tracking error) and T_{E0} (main beam tracking error signal) signals based on phase difference*, Col. 6, Lines 48-58).

6. Regarding claims 2, 5, 8, 12, 14-15, 18 and 21, Deguchi discloses the MPP signal generating unit generates the MPP signal by performing an operation on electrical signals a, b, c, and d which satisfies an equation $MPP = (a+d) - (b+c)$ and the SPP signal generating unit generates the SPP signal by performing an operation on the electrical signals a, b, c, and d which satisfies an equation $SPP = (a+c) - (b+d)$, wherein the main photodetecting units comprise main photodetecting units PD_A , PD_B , PD_C , and PD_D are positioned at four quadrants in a clockwise direction, and wherein the main photodetecting units PD_A , PD_B , PD_C , and PD_D are positioned at four quadrants in a clockwise direction, and wherein the main photodetecting units PD_A and PD_D are symmetrically arranged with the main photodetecting units PD_B and PD_C with respect to the track (*(photodetecting units D and B correspond to PD_B and PD_D , respectively)* Col. 6, Lines 18-33; see Figs. 2 and 6-7).

7. Regarding claims 3, 6, 9, 13, 16, 19, 22 and 23, Deguchi discloses the MPP signal generating unit generates an equation $MPP = (a+d) - (b+c)$ and the SPP signal generating unit generates an SPP signal by performing an operation on electrical signals e and f which satisfies an equation $SPP = (e-f)$, wherein the main photodetecting

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units comprise main photodetecting units PD_A , PD_B , PD_C , and PD_D which respectively output the electrical signals a, b, c, and d, wherein the main photodetecting units are positioned at four quadrants in a clockwise direction, wherein the main photodetecting units PD_A and PD_D are symmetrically arranged with the main photodetecting units PD_B and PD_C with respect to the track, wherein the side photodetectors comprise side photodetecting units PD_E and PD_F are symmetrically arranged at opposing sides of the track and outside of the main photodetecting units PD_A , PD_B , PD_C , and PD_D (*performing addition or subtraction of the T_{E1} (auxiliary beams tracking error) and T_{E0} (main beam tracking error signal) signals based on phase difference*, Col. 6, Lines 25-58).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

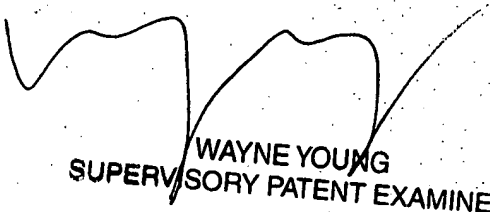
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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MR 12/13/06



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER